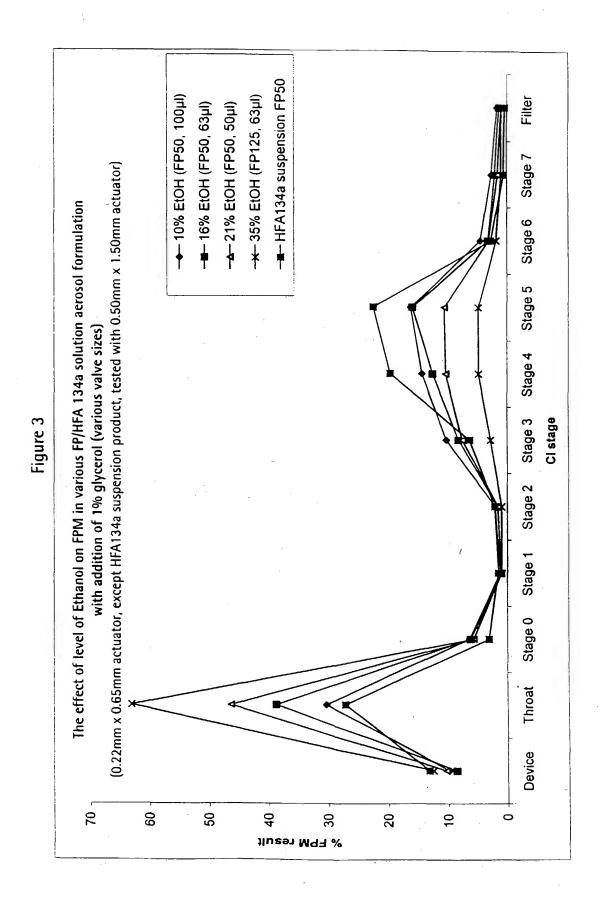


--- FP50 HFA134a suspension product/0.50mm Filter (0.22mm x 0.65mm actuator, except HFA134a suspension product, tested with 0.50mm x 1.50mm actuator) Stage 7 The effect of level of Ethanol on FPM in various FP/HFA134a solution aerosol formulation → 10% EtOH (FP50, 100µl) -\*-35% EtOH (FP125, 63µl) ----16% EtOH (FP50, 63µl) → 21% EtOH (FP50, 50µl) Stage 6 Stage 5 with no addition of glycerol (various valve sizes), Stage 4 Stage 3 Cl stage Stage 2 Stage 1 Stage 0 Throat Device 70 -20 09 6 50 9 0 30 % FPM r sults



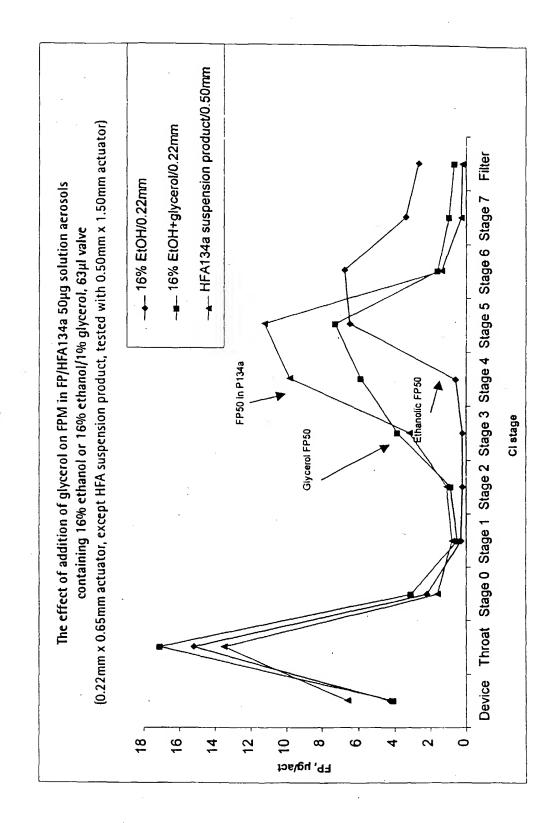
-- EtOH+glycerol/0.22mm --- EtOH/0.22mm Filter Stage 7 The effect of glycerol on FPM in FP/HFA134a 125µg solution aerosols containing 35% ethanol or 35% ethanol and 1% glycerol, 63µl valve Stage 6 (all tested with 0.22mm x 0.65mm actuator) - mean data Stage 5 Stage 3 Stage 4 Figure 4 CI stage Stage 2 Stage 1 Stage 0 Throat Device 70 7 9 50 **FP, µg/аст** 30 6 10 20 Ö

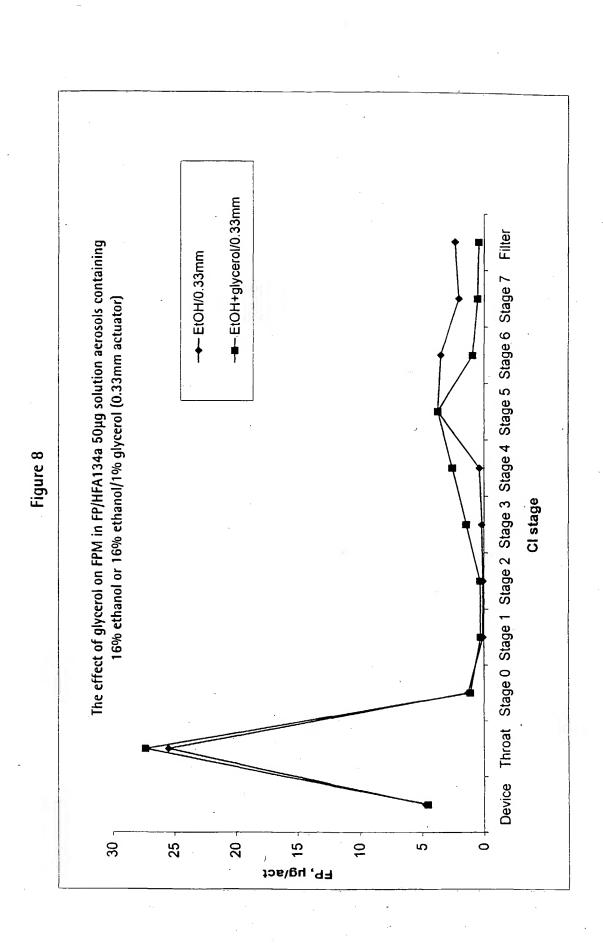
Figure 5

-4- HFA134a suspension product/0.50mm Filter -+- EtOH+glycerol/0.33mm --- EtOH+glycerol/0.22mm FP/HFA134a 50μg solution aerosols containing 16% ethanol and 1% glycerol, 63μl valve Stage 6 Stage 7 The effect of actuator dimensions on FPM and throat deposition in Stage 5 (0.33mm vs. 0.22mm actuator) Stage 4 Stage 3 Cl stage Stage 0 Stage 1 Stage 2 Throat Device 25 20 0 30 15 9 2 FP, µg/act

Figure 6

Figure 7





-\*- HFA134a suspension product/0.50mm Filter --- EtOH+glycerol/0.33mm → EtOH+glycerol/0.22mm Throat Stage 0 Stage 1 Stage 2 Stage 3 Stage 4 Stage 5 Stage 6 Stage 7 → EtOH/0.33mm --- EtOH/0.22mm FP/HFA134a 50µg solutions aerosols containing 16% ethanol or 16% Effects of addition of glycerol and actuator dimensions on FPM in Cl stage Device 25 -35 30 20 0 15 10 2 FP, µg/act

Figure 9

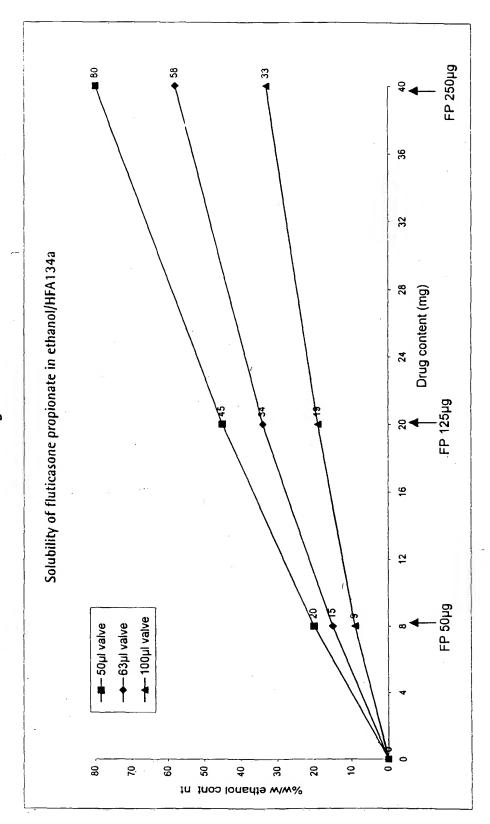
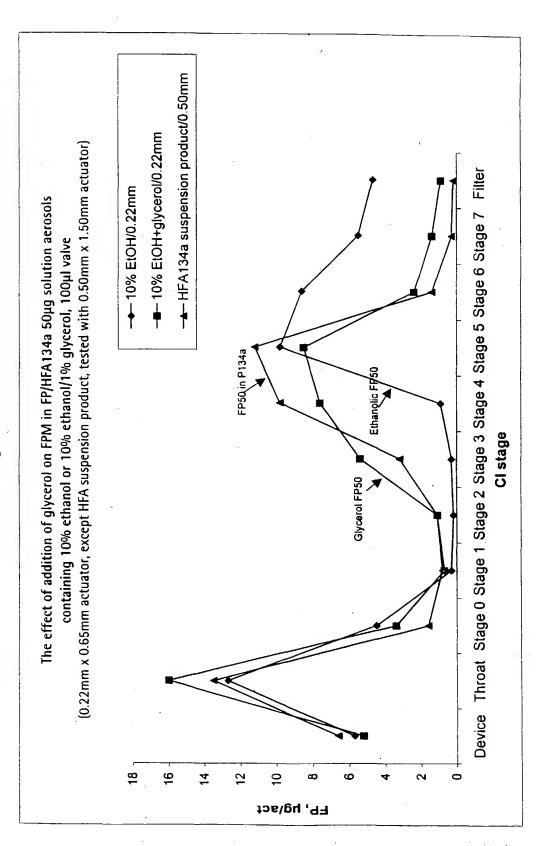
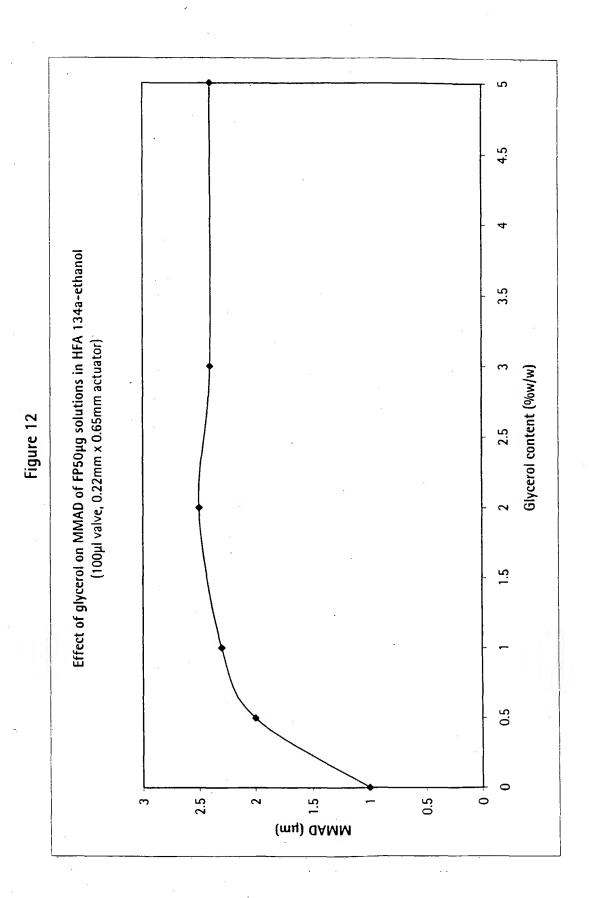


Figure 10

Figure 11



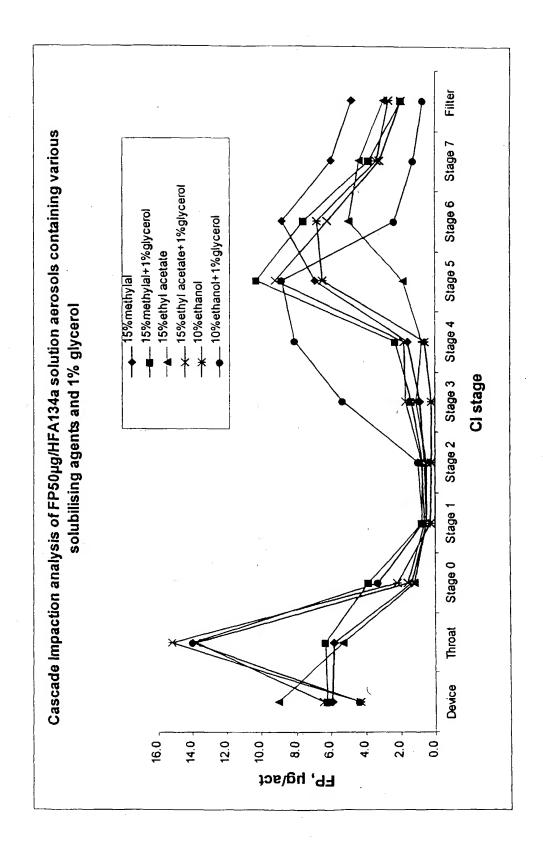


4.5 Effect of glycerol on throat deposition of FP50 $\mu$ g solutions in HFA 134a-ethanol (100 $\mu$ l valve, 0.22 x 0.65 $\mu$ m actuator) 3.5 Glycerol content (%w/w) 1.5 0.5 throat deposition (%) 40 35 30 9 ა 0

Figure 13

Effect of glycerol on stage 3-7 deposition for FP 50µg solutions in HFA 134a-ethanol (100µl valve, 0.22 x 0.65mm actuator) 4.5 → % stage 3 to 7 - → % stage 3 to 5 3.5 Figure 14 Glycerol content (%w/w) က 2.5 1.5 0.5 deposition (%) څ 50 10 09 40 20 ò

Figure 15



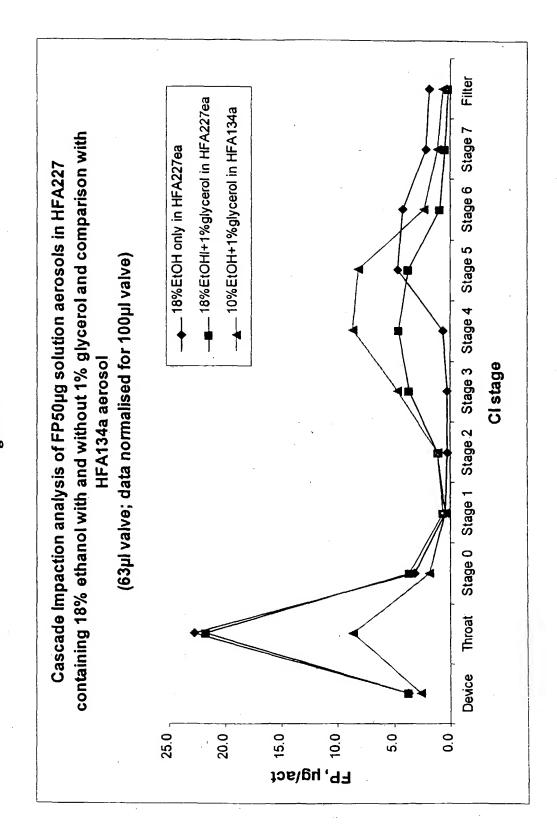
- Propylene glycol Cascade Impaction analysis of FP50µg/HFA134a solution aerosols containing Stage 7 --- PEG200 \_\_\_\_PEG400 Glycerol Stage 6 10% ethanol and various low volatility components Stage 5 (63µl valve; un-normalised data) Stage 4 Stage 3 Stage 2 Stage 1 Stage 0 Throat Device FP, µg/act 8.0 0. 0.0 7.0 0.9 5.0 2.0

Filter

Cl stage

Figure 16

Figure 17



Filter —■— 14%EtOH only in HFA227ea Stage 7 7%EtOH only inHFA134a Cascade Impaction analysis of FP25µg solution aerosols in HFA227 or HFA134a Stage 6 Stage 1 Stage 2 Stage 3 Stage 4 Stage 5 (63µl valve; data normalised for 100µl valve) containing ethanol Cl stage Stage 0 Device . Throat 7.0 م FP, µg/act 0.0 0.1 2.0 5.0 6.0

Figure 18

Figure 19

